

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the U.S. Patent Application of:)	I hereby certify t	that this	paper is being o	deposited with the
Applic	ant(s):	Richard I. Masel et al.)	envelope address	ed to: N	Aail Stop Amendm	CLASS mail in an ent, Commissioner
Serial 1	No.:	10/664,772)	for Patents, P.O. this date.	Box 143	50, Alexandria, K	A 22313-1450, on
Conf. 1	No.:	4868)	<u>May 18, 2005</u> Date		lung for Applie	cant(s)
Filed:		September 17, 2003)	Dure		egistration No. 40	
For:		EL CELLS AND FUEL CTING SHEETS))				
Art Un	it:	1746)				

Not yet assigned

FIRST SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

)

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Dear Sir:

Examiner:

This IDS is submitted under 37 C.F.R. §1.97(b) within either of the following time periods, whichever occurs last:

- (a) within three months of either the filing date of the national application or the date of entry into the national stage; or
- (b) before the mailing date of first office action on the merits (i.e., not including actions such as restriction requirements).

Applicant(s) submit herewith Form PTO-1449 (Information Disclosure Citation) together with copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 C.F.R. §1.56. Applicant(s) respectfully submit that the citation of any reference on Form PTO-1449 does not constitute an admission that the reference qualifies as prior art.

It is requested that the information disclosed on the enclosed Form PTO-1449 be made of record in this application.

The Commissioner is hereby authorized to charge any additional fees which may be required to this application under 37 C.F.R.§§1.16-1.17, or to credit any overpayment, to Deposit Account No. 07-2069. A duplicate copy of this sheet is enclosed.

By:

Respectfully submitted,

300 South Wacker Drive - Suite 2500

Chicago, Illinois 60606 Telephone: (312) 360-0080 Facsimile: (312) 360-9315 Customer Number 24978 GREER, BURNS & CRAIN, LTD.

Thomas R. Fitzsimons Registration No. 40,607

Form PTO-1449 U.S. Department of Commerce (Rev. 8-88) Patent and Trademark Office				Attorney Docket No.: 1201.	Serial No.: 10/664,772			
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U.S. PATEN	NT DOCUMENTS	E	SEE SEE					-
Examiner Initial*	Document Number	Date	Often	Name	Class	Subclass		Date ropriate
	3,297,487	01/10/1967	Pomeroy et a	al.	 			
	3,506,494	04/14/1970	Adlhart					
	3,711,385	01/16/1973	Beer		1			
	4,039,409	08/02/1977	LaConti et al		1			
	4,081,409	03/28/1978	McNicol et al		-			
	4,127,468	11/28/1978	Alfenaar et a	l.				
	4,431,750	02/14/1984	McGinnis et	al.				
	4,447,506	05/08/1984	Luczak et al.					•
	4,457,823	07/03/1984	LaConti et al					
	4,478,917	10/23/1984	Fujita et al.					
	4,797,380 01/10/1989 Motoo et al.							~
	4,806,515 02/21/1989 Luczak et al.				1			
	4,822,699	04/18/1989	Wan et al.	· · · · · · · · · · · · · · · · · · ·				
	5,024,905	06/18/1991	Itoh et al.					,
	5,096,866	03/17/1992	Itoh et al.					
	5,183,713	02/02/1993	Kunz	Will control of the c				
	5,208,207	5/04/1993	Stonehart et	al.				
	5,225,391	07/06/1993	Stonehart et	al.				
	5,246,791	09/21/1993	Fisher et al.					
	5,599,638	02/04/1997	Surampudi e	t al.				
	5,773,162	06/30/1998	Surampudi e	t al.				
	6,007,934	12/28/1999	Auer et al.					
	6,020,083	02/01/2000	Breault et al.				******	
		11/14/2000	Wendt et al.					
	6,165,635	12/26/2000	Auer et al.					
FOREIGN F	PATENT DOCUMENTS							
							Transla	ition
	Document Number	Date	Country		Class	Subclass	Yes	No
	OTUED	- DOOL 14 45 NTO						
	OTHER		o (including Au	thor, Title, Date, Pertinent Pa	yes, ⊨tc.)			
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Form PTO-1449 U.S. Department of Commerce (Rev. 8-88) Patent and Trademark Office				Attorney Docket No.: 1201.68148 Serial No.: 10/664,772						
INFORMATION DISCLOSURE CITATION				Applicant: Richard I. Masel et al.						
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U.S. PATE	NT DOCUMENTS					·				
Examiner							Filino	g Date		
Initial*	Document Number Date			Name	Class	Subclass		ropriate		
	6,284,402	09/04/2001	Mallouk et al							
	6,326,098	12/04/2001	Itoh et al.							
	6,492,147	12/10/2002	Imamura et a	al.						
	6,498,121	12/24/2002	Gorer							
	6,517,965	02/11/2003	Gorer							
	6,649,300	11/18/2003	Ito et al.							
	6,660,680	12/09/2003	Hampden-Si	mith et al.						
	6,670,301	12/30/2003	Adzic et al.							
	6,686,308	02/03/2004	Mao et al.							
	6,723,678	04/20/2004	Gorer	~····						
	6,770,394	08/03/2004	Appleby et a	1.						
	2004/0115518	06/17/2004	Masel et al.							
FOREIGN	PATENT DOCUMENTS				•					
							Transla	ation		
	Document Number	Date	Country		Class	Subclass	Yes	No		
	OTHER	DOCUMENTS	S (Including Au	uthor, Title, Date, Pertinent Pag	es, Etc.)					
	Papageorgopoulos, D. 6	et al.; "CO Tole	rance of Pd R	tich Platinum Paladium Carbon al Society, in press, August 200	Supporte		talysts f	ro		
<u> </u>				s", J. Electroanal. Chem., 1983			-			
	Avramov-Ivic, M. et al.;	"The electroca	talytic properti	es of the oxides of noble metal			on of me	ethanol		
-	and formic acid", Electronic Baldauf, M. et al.; "Form			n Pd Films on Au(hkl) and Pt(h	kl) Electro	odes", J. Ph	VS.			
	Chem.,1996, pp. 11375	-11381.					•	!-		
	Electrodes", Journal of	The Electroche	mical Society							
		try and a New		eactions of Hydrogen And Oxy de Holder", <i>Electroanalytical C</i> i				udy		
				oble Metal Electrodes II. A Corcial Electrochemistry, 1973, pp.			viour of	Pure		
	Capon, A. et al.; "The Oxidation of Formic Acid on Noble Metal Electrodes III. Intermediates and Mechanism on Platinum Electrodes", <i>Electroanalytical Chemistry and Interfacial Electrochemistry</i> , 1973, pp. 205-231.									
Examiner	1		Dat	Date Considered						
*Examiner:	citati		oformance and	or not citation is in conformance d not considered. Include copy				nrough		

Sheet 3 of 5

				Attorney Docket No.: 1201.68148 Serial No.: 10/664.772							
Form PTC (Rev. 8-88	O-1449 U.S. Department of Patent and Trader		Applicant: Richard I. Masel et al.								
	ATION DISCLOSURE CITA eral sheets if necessary)	ATION .	Filing Date: September 17, 2003 Group: 1746								
U.S. PAT	ENT DOCUMENTS										
Examiner Initial*	Document Number	Date		Name	Class	Subclass	Filing Date If Appropriate				
FOREIGN	PATENT DOCUMENTS										
		:			Translation			ıtion			
	Document Number	Date	Country		Class	Subclass	Yes	No			
	OTHER	DOCUMENTS	S (Includina A	uthor, Title, Date, Pertinent Pag	ies. Etc.)	·· -					
	Capon, A. et al.; "The O	xidation of For	mic Acid on N	loble Metal Electrodes IV. Platin		Palladium E	lectrode	s",			
				nemistry, 1975, pp. 285-305. I by Pt/Co nanoparticles", <i>Catal</i>	vsis Lette	rs Vol. 71. N	n 1-2 2	001 nn			
	21-26.						-				
		Clavilier, J. et al.; "Heterogeneous electrocatalysis on well defined platinum surfaces modified by controlled amounts of irreversibly absorbed adatoms", <i>J. Electroanal. Chem.</i> , 1989, pp. 89-100.									
		Climent, V. et al.; "Electrocatalysis of formic acid and CO oxidation on antimony-modified Pt(111) electrodes", Electrochimica Chemistry, 1993, pp. 1403-1414.									
		El-Shafei, A. et al.; "Electrocatalytic oxidation of formic acid on Pt binary and ternary electrodes in H ₃ PO ₄ ", <i>Journal of Electroanalytical Chemistry</i> , 1993, pp. 159-165.									
				e Pt electrode and its influence hemistry, 1998, pp. 81-89.	on HCO	OH oxidation	n in acid	ic and			
		Fernandez-Vega, A. et al.; "Heterogeneous electrocatalysis on well defined platinum surfaces modified by controlled amounts of irreversibly absorbed adatoms", <i>J. Electroanal. Chem.</i> , 1989, pp. 101-113.									
	Gonzalez, M.J. et al.; "E Chem. 1998, pp. 9881-9		Oxidation of S	Small Carbohydrate Fuels at Pt	-Sn Modif	fied Electrod	les", <i>J. F</i>	Phys.			
	Ha, S. et al.; "A miniatur	re air breathing	direct formic	acid fuel cell", Journal of Powe	r Source:	s, 2004, pp.	119-124	1			
	Ha, S. et al.; "Methanol 2002, pp. 655-659.	conditioning fo	r improved pe	erformance of formic acid fuel c	ells", <i>Jou</i>	rnal of Powe	er Sourc	es,			
	Harmsen, J. et al.; "Kine Applied Catalysis, 1997		or wet air oxid	ation of formic acid on a carbor	supporte	ed platinum	catalyst	,			
	Hartung, T. et al.; "Cata Electroanal. Chem., 198			monolayers on the Electrooxida	ition of Fo	ormic Acid o	n Pt", <i>J</i> .				
		Herrero, E. et al.; "Oxidation of formic acid on Pt(111) electrodes modified by irreversibly absorbed tellurium", <i>Journal of Electroanalytical Chemistry</i> , 1995, pp. 161-167.									
		Herrero, E. et al.; "Oxidation of formic acid on Pt(100) electrodes modified by irreversibly absorbed tellurium", Journal of Electroanalytical Chemistry, 1995, pp. 145-154.									
	Jiang, J. et al.; "Nanosti Electroanalytical Chemi			trocatalyst for the electrooxidat	ion of forr	nic acid", <i>Jo</i>	ournal of				
Examiner			Dat	e Considered							
*Examine	citat		nformance and	or not citation is in conformance d not considered. Include copy				nrough			

Sheet 4 of 5

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Form PTO- (Rev. 8-88)	1449 U.S. Department of Patent and Trader		Attorney Docket No.: 1201.68148 Serial No.: 10/664,772							
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POREIGIN	-ATENT DOCOMENTS		[<u> </u>	Transla			
	Document Number	Doto	Country		Class	Subclass	Transla Yes			
	Document Number	Date	Country		Class	Subciass	162	No		
			<u></u>							
	OTHER	DOCUMENTS	6 (Including	Author, Title, Date, Pertinent F	ages, Etc.)					
	Beden, B. et al.; "Electro Electroanal. Chem., 197			Metals for the Oxidation of For	mate in Ne	utral Mediur	n", <i>J</i> .			
	Llorca, M. et al.; "Form Chemistry, 1994, pp. 15		on on Pd _{ad} +	-Pt(100) and Pd _{ad} + Pt(111) e	electrodes",	Journal of	Electroa	nalytical		
	Llorca, M. et al.; "Formic acid oxidation on Pt(111) electrodes modified by irreversibly absorbed selenium", <i>Journal of electroanalytical Chemistry</i> , 1994, pp. 217-225.									
	McGovern, M. et al.; "Ef Sources, 2003, pp. 35-3		as a binding	g agent for unsupported nanop	article cata	lysts", <i>Jouri</i>	nal of Po	wer		
				ed Pt-Ru/WO ₃ electrodes for emistry, 1995, pp. 223-225.	he electroo	xidation of f	ormic ac	id at		
	Waszczuk, P. et al.; "A Communications, 2002,		atalyst with s	uperior activity for electrooxid	ation of forn	nic acid", <i>Ele</i>	ectroche	mistry		
			_	lafion® membranes", Journal						
	Pron'kin, S. et al.; "Nanoparticle of Pt hydrosol immobilized on Au support: an approach to the study of structural effects in electrocatalysis", <i>Electrochimica Acta</i> , 2001, pp. 2343-2351.									
				cells", Journal of Power Sources		p. 229-235.				
	Gasteiger`, H. et al.; "El	ectro-Oxidatior	of Small O	al of Power Sources, 2002, pp ganic Molecules on Well-Cha		Pt-Ru Alloys	,			
	Electrochimica Acta, Vo			1825-1832. of HCOOH by bismuth modifi	ed Pt(111)	electrodes w	/ith (110	1		
	manatomic steps", Jour	nal of Electroa	nalytical Che	emistry, 1999, pp. 43-49.						
	Shibata, M. et al.; "Elect Electroanal Chem., 198			Part XXII.: S _{hole} Control By Ad-	Atoms on H	ICOOH Oxid	dation, J.			
	Chen, M. et al.; "Enhand of rotation rate", Electro			cal oxidation of formic acid. E 81-3492.	ffects of an	ion absorpti	on and v	/ariation		
Examiner			Da	ate Considered						
*Examiner:										

	0-1449 U.S. Department of		Attorney Docket No.: 1201.68	Serial No.: 10/664,772					
(Rev. 8-88) Patent and Trademark Office INFORMATION DISCLOSURE CITATION				Applicant: Richard I. Masel et	ː al.	_			
	eral sheets if necessary)			Filing Date: September 17, 2003 Group: 1746					
U.S. PATI	ENT DOCUMENTS								
Examiner Initial*	Document Number	Date		Name	Class	Subclass		Filing Date If Appropriate	
FOREIGN	I N PATENT DOCUMENTS	L		I		<u> </u>	<u> </u>		
							Transla	ation	
	Document Number	Date	Country		Class	Subclass	Yes	No	
	OTHER	POCUMENTS	S (Including A	uthor, Title, Date, Pertinent Page	es Etc.)				
	Beltowska-Brzezinska M	M. et al.; "The Ir	nfluence of Up	pd-Lead on the Absorption of Fo ta, Vol. 30, No. 11, 1985, pp. 14	rmaldeh		Acid an	ıd	
		nto the influence	e of upd Sn o	n the oxidation of formic acid on			olution",		
	Xiang, J. et al.; "Investig sulfuric acid solution",	gation of the me lournal of Elect	echanism of the roanalytical C	the electrochemical oxidation of the chemistry, 2001, pp. 95-100.	formic ac	id at a gold	electroc	de in	
	with Sb towards HCOO	H oxidation", El	lectrochimica	talytic properties of Pt(100), Pt(1 Acta, 2001, pp. 4339-4348.					
	320.			on a Rhodium Electrode", J. Ele					
	Zhang, X. et al.; "Electro Carbon", Electrochimica			ic Acid on Ultrafine Palladium Pa 5, pp. 1889-1897.	articles S	upported or	า a Glas:	sy	
				d fuel cells", Journal of Power Sc					
	Palladized Platinum Ele	ectrodes," J. Ph	nys. Chem. B	wski, "Formic Acid Decomposition 1999, 103, pp. 9700-9711.				m and	
	Electrooxidation on Pla	tinum/Rutheniu	ım Nanopartic	V. Montiel, A. Aldaz, and A. Wie cle Catalysts," Journal of Catalys	sis 203, p	p. 1-6 (200	1).		
	CH₃, CH₃OH, HCOOH a 54.	and the Nonand	omalous Kine	ttering of Small Molecules from F etics of Hydrogen Atom Recombi	ination, S	Surf. Sci., 19			
				ochemical studies of CO and methanol adsorbed at el cell catalysis," Electrochimica Acta 47, 22-23, 3637-3652 (2002).					
				egas and M. Weaver, "Electro-ox a Acta, 40, 91-98, (1995).	idation m	ıechanisms	of metha	anol and	
				elt, P. N. Ross and N. M. Markov sysical Chemistry Chemical Phys				formic	
				. Kubota, J. N. Kondo, A. Wada, ırf. Sci., 651, 357-358, (1996).	K. Dome	en and C. H	irose, "S	FG	
	Pd(100)," J. Am. Chem.	. Soc., 110, 397	7, (1988).	on Group VIII metals: activation o					
	(1991).			n of HCOOH on K-promoted Pd(
	C. Xu and D. W. Goodr Mo(110)," J. Phys. Che			ion of Formic Acid on a Pseudon	norphic F	Palladium M	onolaye	ron	
Examiner				Date Considered					
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